

a seal comprising a diaphragm that is operable to mechanically respond to externally-applied pressure of a process media;

a pressure-conveyance media at least partially disposed in the seal, the pressure of the pressure-conveyance media responsive to the mechanical response of the diaphragm;

a strain-gauge pressure sensor coupled to the pressure-conveyance media and operable to sense a pressure of the pressure-conveyance media and to generate a signal representative thereof;

a thermocouple temperature sensor coupled to the pressure-conveyance media and operable to sense a temperature of the pressure-conveyance media and to generate a signal representative thereof;

a microprocessor coupled to the pressure sensor and the temperature sensor, the microprocessor operable to:

determine the pressure of the pressure-conveyance media based on the signal generated by the pressure sensor,

determine the temperature of the pressure-conveyance media based on the signal generated by the temperature sensor,

compensate the pressure of the pressure-conveyance media based on the temperature of the pressure-conveyance media,

determine the pressure exerted externally on the diaphragm by the process media using the compensated pressure of the pressure-conveyance media,

determine an indicia representing the pressure exerted externally on the diaphragm by the process media,

generate a signal representing the indicia, and

generate a signal representing the pressure exerted externally on the diaphragm by the process media; and

a visual output device coupled to the microprocessor, the visual output device operable to display the indicia representing the pressure exerted externally on the diaphragm by the process media based on the signal generated by the processor.